

# Special Lucalox

High Pressure Sodium Lamps  
Lucalox Internal Ignitor Elliptical Clear 70W  
and Elliptical Diffuse 70W



DATASHEET

## Lucalox Internal Ignitor lamps

- For use in luminaires without internal ignitor equipment
- Simplifies luminaire design
- Up to 17,500 hour life



## Specification summary

| Nominal Wattage [W]                           | Rated Wattage [W] | Weighted Energy Consumption [kWh/1000 hrs] | Volts [V] | Cap | Product Description   | Product Code | Nominal lumen (lm) | Rated lumen (lm) | Rated Lamp Efficacy [lm/W] | Energy Efficiency Class [EEC] | CCT [K]** | Colour Rendering Index [Ra]** | Rated Average Life [hr] | Mercury Content [mg] | Ambient Temperature [°C] |
|---|-------------------|--|-----------|-----|-----------------------|--------------|--------------------|------------------|----------------------------|-------------------------------|-----------|-------------------------------|-------------------------|----------------------|--------------------------|
| Lucalox Internal Ignitor - Elliptical Clear   |                   |  |           |     |                       |              |                    |                  |                            |                               |           |                               |                         |                      |                          |
| 70  | 71                | 79.39                                      | 90        | E27 | LU70/90/MO/I/E27 TU   | 93102204     | 6100               | 6400             | 91                         | A+                            | 2000      | 25                            | 17,500                  | 10.0                 | 25                       |
| Lucalox Internal Ignitor - Elliptical Diffuse |                   |  |           |     |                       |              |                    |                  |                            |                               |           |                               |                         |                      |                          |
| 70  | 71                | 78.17                                      | 90        | E27 | LU70/90/MO/D/I/E27 TU | 93102203     | 5750               | 6000             | 86                         | A                             | 2000      | 25                            | 17,500                  | 10.0                 | 25                       |

\*\*CCT and CRI data are informative only due to the HPS performance. No regular measurements are taken on these parameters.

## Dimensions

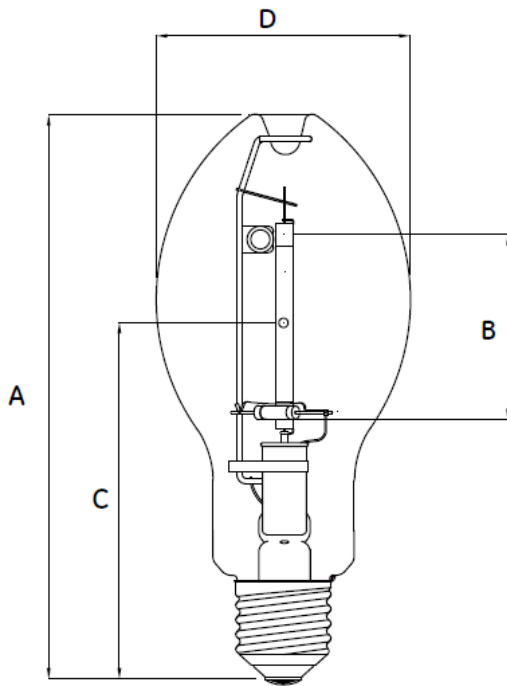


Fig. 1

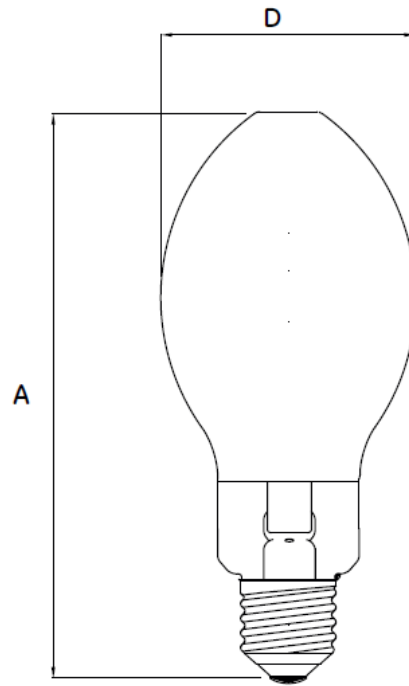


Fig. 3

| Wattage  | A Length (mm) | D Diameter (mm) | C LCL (mm) | B Arc Gap (mm) | Cap | Bulb Glass | Mass (g) | Operating Position | Minimum Starting Temperature |
|--|---------------|-----------------|------------|----------------|-----|------------|----------|--------------------|------------------------------|
| Lucalox - Internal Ignitor Elliptical Clear - Fig. 1   |               |                 |            |                |     |            |          |                    |                              |
| 70   | 156           | 72              | 97         | 34.8           | E27 | Soft       | 70       | Universal          | -40°C                        |
| Lucalox - Internal Ignitor Elliptical Diffuse - Fig. 3 |               |                 |            |                |     |            |          |                    |                              |
| 70   | 156           | 72              | -          | -              | E27 | Soft       | 70       | Universal          | -40°C                        |

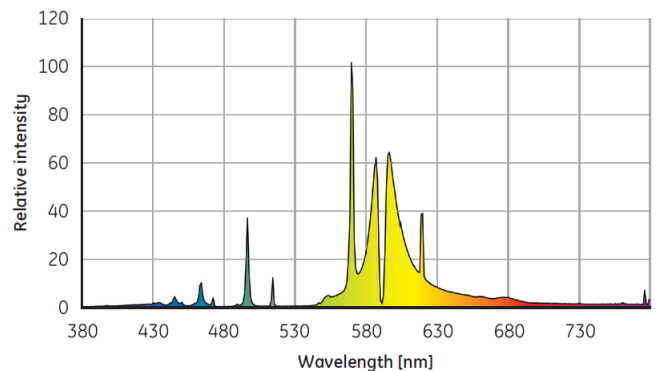
## Photometric data

| Wattage                                       | 100 Hour Lumens | CCT [K] | Chromacity Coordinates |      | CRI [Ra] | Prop. DIN5035 Class. |
|---|-----------------|---------|------------------------|------|----------|----------------------|
|   |                 |         | x                      | y    |          |                      |
| Lucalox - Internal Ignitor Elliptical Clear   |                 |         |                        |      |          |                      |
| 70  | 6000            | 2000    | 0.53                   | 0.43 | 25       | 4                    |
| Lucalox - Internal Ignitor Elliptical Diffuse |                 |         |                        |      |          |                      |
| 70  | 5800            | 2000    | 0.53                   | 0.43 | 25       | 4                    |

Photometric data is quoted for the lamp in a horizontal orientation operating from a nominal ballast at rated supply volts.

## Spectral power distribution

Double Ended and Internal Ignitor lamps



## Electrical data

Data is based on a nominal lamp operating from a nominal choke (reactor) ballast with power factor correction. Supply power is based on a typical commercially available ballast.

## Lamp data

| Wattage                    | Volts ±15 (V) | Current [A] | Power [W] | Current Crest Factor |
|----------------------------|---------------|-------------|-----------|----------------------|
| Lucalox - Internal Ignitor |               |             |           |                      |
| 70                         | 90            | 0.98        | 70        | 1.45                 |

## Lamp survival and lumen maintenance

Average lamp life & lumen maintenance is based on laboratory tests of a large number of representative lamps under controlled conditions, including operation at 10 hours per start on ballasts having specified electrical characteristics. The following conditions can reduce average lamp life and lumen maintenance:

- frequent on/off switching
- high line voltage
- vibration
- high ambient temperature within the fixture
- ballast and ignitor characteristics

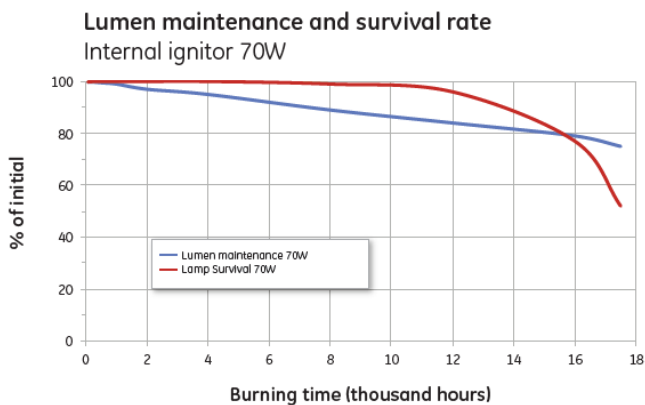
## Average rated life

The survival of individual lamps or particular groups of lamps depends on these system conditions, and actual data may fall within the lines, or dependent upon the lamp operating conditions even below the lower limit below (see Lamp survival graph). For cost-of-light calculations involving these lamps, the following estimated operating times are suggested for 50% survival:

Lucalox Internal Ignitor – 50W – 12,000 hours -  
70W – 17,500 hours

## Lumen maintenance

Under the same controlled conditions, Initial Reference lumens refer to the lamp lumen output after 100-hours burning. Due to variations in systems and service conditions (in particular the burning cycle), actual lamp performance can vary from the reference lumen ratings. The lumen maintenance (light output during life) of individual lamps or particular groups of lamps may fall within the lines, or dependent upon the lamp operating conditions even below the lower limit line (see Lumen maintenance graph).



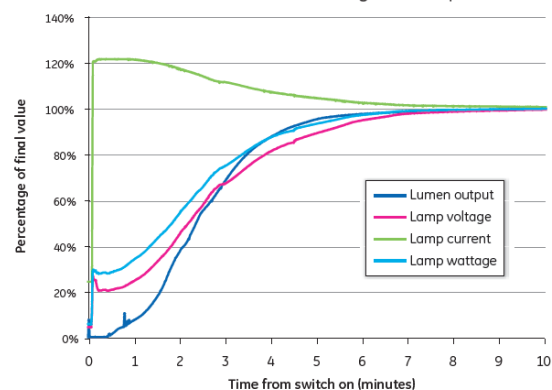
## Run-up characteristics

The graph shows typical run-up characteristics for a Lucalox lamp. Time for the light output to reach 90% of the final value is determined by supply voltage and ballast design. Typical values are:

|               |    |
|---------------|----|
| Wattage       | 70 |
| Run-up (mins) | <5 |

## Typical run-up characteristics

Integral ignitor lamps



## Hot re-strike time

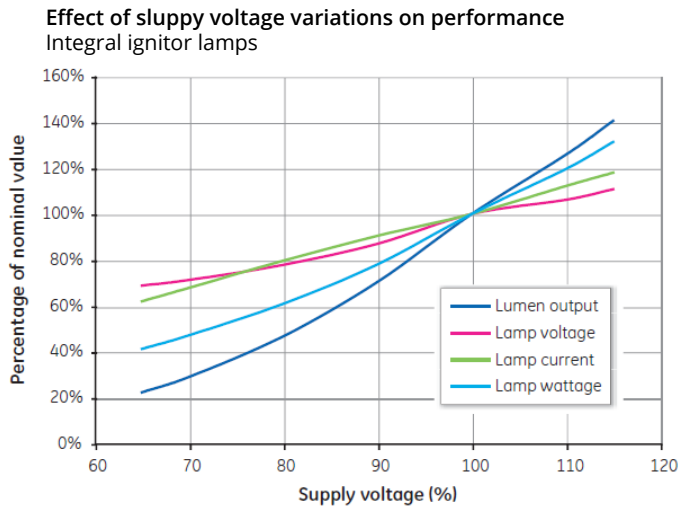
### Lucalox Internal Ignitor

All ratings must restrike between 1 and 7 minutes following a short interruption of power supply.

## Supply voltage

Lamps are suitable for supplies in the range 220V to 250V 50/60Hz for appropriately rated series choke (reactor) ballasts. Supplies outside this range require a transformer (conventional, high reactance or CWA) to ensure correct lamp operation. Lamps start and operate at 10% below the rated supply voltage when the correct control gear is used.

However, in order to maximise lamp survival, lumen maintenance and colour uniformity the supply voltage and ballast design voltage should be within  $\pm 3\%$ . Supply variations of  $\pm 5\%$  are permissible for short periods only. This may be achieved by measuring mean supply voltage at the installation and selecting ballasts with appropriate settings.



## Control gear

It is essential to use a ballast appropriate to the supply voltage at the luminaire. Typical wiring diagrams for control circuits incorporating "Superimposed" or "Impulser" ignitor and choke (reactor) ballast are shown. Refer to actual choke and ignitor manufacturers data for terminal identification and wiring information. A typical wiring diagram for Lucalox Internal Ignitor HPS lamps and choke (reactor) ballasts is shown separately.

## Warning

Do not use a Lucalox Internal Ignitor HPS lamp in an installation that has an external ignitor unit as this may cause the lamp to become inoperable.

## Compliance with IEC standards

All Elliptical lamps comply with IEC 60662.

## Guidance for luminaire manufacturers

### Lamp operating temperature limits

|                       |       |
|-----------------------|-------|
| Wattage               | 70 W  |
| Max. Bulb Temperature | 210°C |
| Max. Cap Temperature  | 310°C |

## Control gear

To achieve correct lamp starting, performance and life it is important that lamp and control gear are compatible and suitably rated for the supply voltage at the luminaire.

## Ballasts

Lamps are fully compatible with ballasts manufactured for high pressure sodium lamps to IEC 60662. Ballasts should comply with specifications IEC 60922 and IEC 60923.

## Ballast thermal protection

Use of ballasts incorporating thermal cut-out is not a specific requirement but is a good optional safety measure for the installation.

## Ballast voltage adjustment

Series choke (reactor) ballasts incorporating additional tapings at  $\pm 10V$  of the rated supply voltage are recommended. Alternatively a single additional tapping 10V above the rated supply voltage will ensure lamps are not overloaded due to excessive supply voltage.

## PFC capacitors for choke (reactor) circuits

Power factor correction is advisable in order to minimise supply current and electricity costs. For 220-250V supplies 250V $\pm$ 10% rated capacitors are recommended as follows:

|                           |    |
|---------------------------|----|
| Wattage                   | 70 |
| PFC Capacitor ( $\mu F$ ) | 8  |

## Luminaire voltage rise

To maximise lamp life it is essential that luminaires are designed so that when lamps are enclosed lamp voltage rise does not exceed the following values:

|   |    |
|---|----|
| Wattage   | 70 |
| Lucalox – Internal Ignitor<br>Voltage Rise (V)  | 5  |
| Lucalox – TD – Double Ended<br>Voltage Rise (V) | -  |